

The Examiner's rejections of all of the pending claims under 35 USC §103(a), over Doi et al. (U.S. Patent No. 6,378,999) in view of Zhu (U.S. Patent No. 5,889,083), and either Sano et al. (U.S. Patent No. 5,324,349) or Kubota et al. (U.S. 6,232,370), are respectfully traversed.

Three independent claims are pending in the present application: Claims 1, 13, and 18. Claim 1 is drawn to an ink comprising "0.5-5% defoamer." Claim 18 is drawn to a method of using an ink comprising "0.5-5% defoamer." Claim 13 is drawn to an ink having "an equilibrium surface tension of about 25-42 mN/m." Moreover, claim 10, which depends from claim 1, is also drawn to an ink having "an equilibrium surface tension of about 25-42 mN/m."

In regard to the defoamer, the Examiner states that "Doi et al. disclose use of surfactant but not defoamer as presently claimed. However, the surfactants disclosed by Doi et al. such as acetylene glycol and silicone based surfactants are well known, as evidenced by Zhu (col. 10, lines 11-44), as defoamers." (Office Action of November 22, 2002, page 3, 2nd full paragraph).

Doi et al. does teach inks comprising surfactants (see col. 9, line 40 to column 10, line 20), and Zhu does teach inks containing defoamers (see col. 10, lines 12-51). However, the Examiner has not demonstrated that any of the surfactants disclosed in Doi et al. are defoamers.

As noted by the Examiner, Doi et al. lists "acetylene glycol" and "silicone-based surfactants" as surfactants (see col. 9, lines 64 and 65; and col. 10, lines 8 and 9).

Nevertheless, contrary to what the Examiner states, Zhu does not teach that acetylene glycol and silicone-based surfactants are defoamers. Rather, Zhu merely states that “[s]uitable defoamers include silicone defoamers and acetylenic defoamers.” (col. 10, lines 17 and 18). This statement does not demonstrate that the silicone-based surfactants taught in Doi et al. are silicone defoamers, nor does it demonstrate that the acetylene glycol surfactant taught in Doi et al. is an acetylenic defoamer. Two compounds do not share the same properties merely because they share the word “silicone” or “acetylene” in their names. Thus, the Examiner has not presented a *prima facie* case of obviousness because the references upon which he relies do not teach the use of defoamer as required by claims 1 and 18, and claims depending therefrom.

Moreover, as stated in MPEP §2145XD2, “[i]t is improper to combine references where the references teach away from their combination.” In this regard, Doi et al. states that “water-soluble dye-based ink jet ink ... has problems in water resistance and lightfastness.” (col. 1, lines 21-24). On the other hand, in the inks of Zhu, “[w]ater is used as the ink carrier for the aqueous jet ink composition of the present invention.” (col. 3, lines 16 and 17). Zhu further teaches that “[a]ny dye ... that may be dissolved or dispersed in the ink composition can be used.” (col. 3, lines 26-28). Thus, Zhu **teaches** the use of water-soluble dye-based ink while Doi et al. **teaches away** from the use of water-soluble dye-based ink. It is therefore improper to combine Zhu and Doi et al. in support of an obviousness rejection because these two references teach away from their combination.

In regard to the equilibrium surface tension recited in claims 10 and 13, the Examiner admits that "there is no disclosure of the surface tension of the ink" in Doi et al. (Office Action of November 22, 2002, sentence bridging pages 2 and 3).

Nevertheless, the Examiner goes on to state that "Doi et al. disclose ink comprising identical ingredients as presently claimed" and "the ink [of Doi et al.] would intrinsically possess surface tension as presently claimed."¹ (Office Action of November 22, 2002, sentence bridging pages 2 and 3).

However, the Examiner later states that "[t]he difference between Doi et al. and the present claimed invention is the requirement in the claims of (a) amount of acrylic resin emulsion in ink composition and (b) particle size of ink." (Office Action of November 22, 2002, 3rd full paragraph). Thus, the Examiner has contradicted herself. If the ink of Doi et al. and the presently claimed ink have differences (a) and (b) noted above, then these two inks do not have "identical ingredients." Moreover, if these two inks had "identical ingredients," then the Examiner should have rejected claims 10 and 13 as being anticipated by Doi et al.

In order to logically respond to the Office Action of November 22, 2002, the applicant must assume that the Examiner believes that the ink of Doi et al. does not

¹ Because the physicochemical properties of a composition depend on (1) its components and (2) *the concentrations of these components*, the Examiner's comments with respect to intrinsic surface tension of the Doi et al. ink make sense only if one assumes that by "identical ingredients," the Examiner means identical ingredients *in the same concentrations* found in the presently claimed ink. If this assumption is incorrect, then the Applicant requests that the Examiner issue another nonfinal office action in which the meaning of the term "identical

anticipate the present claims, but that the present ink can be achieved by modifying the ink of Doi et al. as taught by Sano et al. or Kubota et al., each of which, according to the Examiner, teach the use of acrylic resin emulsions in the concentrations called for by the present claims.

In other words, the Examiner apparently believes that the presently claimed ink does not actually exist in the prior art, but that it would have been obvious to make this ink, and that this ink would have had a surface tension within the range recited in claim 13. However, as stated as follows in *In re Spormann and Heinke*, 150 USPQ 449, 452 (CCPA 1966), "the inherency of an advantage and its obviousness are entirely different questions. That which may be inherent is not necessarily known. Obviousness cannot be predicated on what is unknown." Thus, the Examiner's **obviousness** rejection based upon an allegedly **intrinsic** surface tension is inapposite.

Accordingly, in the absence of additional prior art of increased pertinency, it is clear that the present invention as defined in the claims is indeed patentable and notice to that effect is respectfully requested.

ingredients" is clarified.

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The undersigned attorney and Richard M. Beck remain available to discuss this application and response with the Examiner by way of a telephonic or personal interview.

Respectfully submitted,

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